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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/961,287	09/25/2001	Tatsuo Uchida	2224-0189P	5315

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EXAMINER
RUDE, TIMOTHY L

ART UNIT	PAPER NUMBER
2871	

DATE MAILED: 07/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/961,287	UCHIDA ET AL.	
	Examiner	Art Unit	
	Timothy L Rude	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 April 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) *7-10 and 14* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6 and 11-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

d)☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

4)☐ Information Disclosure Statements (PTO-1449) Paper No(s).

5)☐ Other

DETAILED ACTION

Claims

1. Claims 1 and 5 are amended.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-6 and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Honda et al (Honda) USPAT 5,851,700.

As to claim 1, Honda teaches nine examples of one embodiment of a light-scattering sheet comprising a light-scattering layer which comprises a plurality of resins (col. 3, lines 1-22) varying in refractive index (col. 3, lines 5-8) and scatters an incident light isotropically (specified haze is not anisotropic, col. 4, lines 29-43), and has a domain gap of 1 to 20 μm (overlaps Applicant's phase separation structure having an

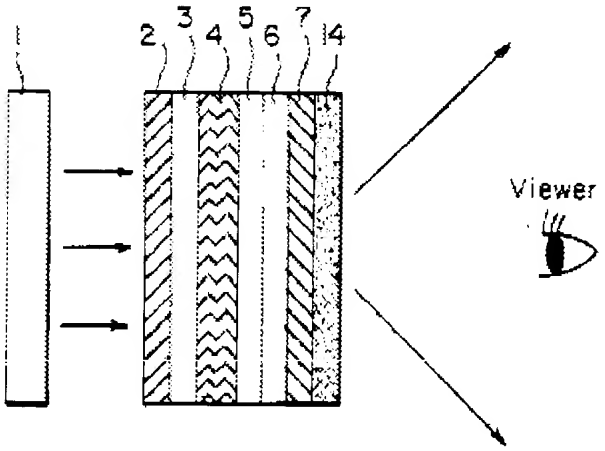

FIG. 1

The light-scattering layer of Honda has a phase separation structure composed of a plurality of resins varying in refractive index, and has a structure formed by irradiating UV light (col. 4, lines 5-8) (Applicant's spinodal decomposition, per specification page 31, lines 14-25) which would result in a bicontinuous phase structure per Applicant's enabling disclosure (Specification page 31, line 15 through page 36, line 6).

Honda discloses that the light-scattering layer preferably has a haze between 30% and 85% which equates to a ratio of a linearly transmitted light to an incident light of 15 to 70 % (overlaps Applicant's range of 0.1 to 15 %) (col. 4, lines 29-44), to widen the viewing angle, decrease the shadow area, and reduce Moiré effects which results in

Honda is evidence that ordinary workers in the art of liquid crystals would find the

reason, suggestion, or motivation to use a ratio of a linearly transmitted light to an

incident light of 15% or less to widen the viewing angle, decrease the shadow area, and reduce Moiré effects which results in better display performance.

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to use a layer with a ratio of a linearly transmitted light to an incident light of 15% or less to widen the viewing angle, decrease the shadow area, and reduce Moiré effects which results in better display performance.

As to claims 2-4, Honda teaches a light-scattering sheet with the structure of claim 1 and having a thickness of 50 to 300 μm (overlaps Applicant's Examples, specification pages 44-48) wherein the light-scattering layer would express a light-scattering intensity profile having substantially flat area at ranges of scattering angle θ within the range 3 to 25° from a scattering center as a function of its structure, per Applicant's enabling disclosure.

As to claim 5, Honda teaches a light-scattering sheet according to Claim 1, wherein the light-scattering layer has a phase separation structure composed of a plurality of resins varying in refractive index, and has a structure formed by irradiating UV light (col. 4, lines 5-8) (Applicant's spinodal decomposition, per specification page 31, lines 14-25) which would result in a bicontinuous phase or an intermediate structure

enabling disclosure (Specification page 31, line 15 through page 36, line 6).

As to claim 6, Honda teaches his one embodiment of a light-scattering sheet is for a LCD (Title) broadly, which includes transmissive and reflective LCDs comprising transparent or reflective supports with the light-scattering layer formed on at least one side of the support.

As to claim 11, Honda provides numerous examples of applicable resins (col. 3, lines 9-22) and further teaches that a light-scattering layer may comprise any photopolymerizable monomers or oligomers (col. 3, lines 23-28) so long as they have refractive indexes which differ from each other by 0.01 or larger (Applicant's a first resin selected from the group consisting of a cellulose derivative and a (meth)acrylic resin, and a second resin selected from the group consisting of a styrenic resin, an alicyclic olefinic resin, a polycarbonate-series resin and a polyester-series resin).

As to claim 12 Honda teaches a light-scattering sheet wherein the weight ratio of the first resin to the second resin (col. 10, lines 40-43 and lines 59-62) is 9:1 to 1:9 (Applicant's 10/90 to 90/10).

As to claim 13, Honda teaches a light-scattering sheet as claimed above wherein the fluctuation width of light-scattering intensity in the flat area would be 0 to 20 when a

Response to Arguments

3. Applicant's arguments filed on 15 April 2003 have been fully considered but they are not persuasive.

Applicant's ONLY arguments are as follows:

(1) Honda fails to teach regularity of phase separation structure, bicontinuous phase structure, and spinodal decomposition.

(2) Since Honda discloses photopolymerization and curing with UV light, Honda fails to teach or suggest spinodal decomposition.

(3) The invention shows unexpected results over Honda.

(4) Honda's light scattering is different.

Examiner's responses to Applicant's ONLY arguments are as follows:

(1) It is respectfully pointed out that Applicant's enabling disclosure (Specification page 31, line 15 through page 36, line 6) teaches a number of methods may be used to make the claimed invention, including the method disclosed by Honda. Examiner has considered Applicant's disclosure to be enabling, and therefore the method of Honda satisfies the steps of Applicant's ultraviolet polymerization method that Applicant discloses. Examiner considers all methods to be substantially equal on their merits. Examiner was not able to find any specific steps in Applicant's method of making that

are directly attributable to the formation of regularity of phase separation structure, bicontinuous phase structure, or spinodal decomposition that are not taught by Honda.

(2) It is respectfully pointed out that of Honda satisfies the steps of Applicant's ultraviolet (UV light) polymerization method (Specification page 31, lines 18-24).

(3) It is respectfully pointed out that the enabling disclosure indicates that the invention's unexpected results would necessarily be obtained by Honda. This must be true if Applicant's disclosure is truly enabling.

(4) It is respectfully pointed out that Honda's light scattering measurement method is different from that employed by Applicant (as Applicant has acknowledged), and Examiner is not convinced that there is any discrepancy. Please not that the scattering of Honda "flattens out" (Figure 6, curves 16-18) as the angle of incidence deviates from perpendicular. Since Applicant's measurements are of reflected scattering rather than transmissive, it is reasonable to expect a flattening of reflected scattering from the device of Honda, given the reflection of off-angle light back through the device of Honda. Furthermore, Honda would necessarily obtain the performance characteristics of the claimed invention, because Honda meets the method of making requirements provided in Applicant's enabling disclosure (Specification page 31, line 15 through page 36, line 6). Honda also teaches a method to achieve directional scattering (col. 4, lines 13-43), whereby directional scattering is controlled by a results effective

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy L Rude whose telephone number is (703) 305-0418. The examiner can normally be reached on Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H Kim can be reached on (703) 305-3492. The fax phone numbers

for regular communications are (703) 872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4900.

Timothy L Rude
Examiner
Art Unit 2871

TLR
June 30, 2003